

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number
WO 2005/047848 A2

(51) International Patent Classification⁷:

G01N

(21) International Application Number:

PCT/FI2004/000683

(22) International Filing Date:

15 November 2004 (15.11.2004)

(25) Filing Language:

Finnish

(26) Publication Language:

English

(30) Priority Data:

20031658 14 November 2003 (14.11.2003) FI

(71) Applicant (for all designated States except US): LICENTIA OY [FI/FI]; Erottajankatu 19 B 5, FI-00130 Helsinki (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): KOSTIAINEN, Risto [FI/FI]; Väinö Auerinkatu 7 F 72, FI-00560 Helsinki (FI). FRANSSILA, Samuli [FI/FI]; Tukholmankatu 7 C 19, FI-00270 Helsinki (FI). KOTIAHO, Tapio [FI/FI]; Otsonkalliontie 3 S 139, FI-02110 Espoo (FI). MARTTILA, Seppo [FI/FI]; Maanituntie 16, FI-01900 Nurmijärvi (FI).

(74) Agent: SEppo LAINE OY; Itämerenkatu 3 B, FI-00180 Helsinki (FI).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A2

WO 2005/047848

(54) Title: METHOD AND APPARATUS FOR MASS SPECTROMETRIC ANALYSIS

(57) Abstract: A method and an apparatus for examining a sample by means of mass spectrometry. According to the method, the solution comprising the sample to be examined is vaporised in a vaporiser, the vaporised sample solution is sprayed, using a gas flow, into a corona discharge zone, where the examined sample is ionised according to the APCI method, using a corona discharge, to generate gas phase ions, and the ions are separated and directed to a detector. According to the present invention, a vaporiser is used, which is fabricated as a micromechanical structure which comprises the flow channels for the solution and for the carrier gas possibly used for feeding the solution, as well as the heater of the vaporiser, and which are all included in a monolithic structure. The solution is especially suitable for cases in which a very sensitive analysing technique is needed, or in which the available sample quantity is very small (less than 1 μ L).